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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/821,732	03/30/2001	Yukio Hemmi	016887/1038	5467

22428 7590 09/25/2003

FOLEY AND LARDNER  
SUITE 500  
3000 K STREET NW  
WASHINGTON, DC 20007

EXAMINER
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KEITH, JACK W

ART UNIT	PAPER NUMBER
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3641

DATE MAILED: 09/25/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/821,732

Applicant(s)

Hemmi et al

Examiner

Jack Keith

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on Jul 17, 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-18 and 21-25 is/are pending in the application.
- 4a) Of the above, claim(s) 6-8, 10, 11, 13-18, 21, and 22 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5, 9, 12, and 23-25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claims \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some\* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\*See the attached detailed Office action for a list of the certified copies not received.

- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). \_\_\_\_\_ 6) ☐ Other: \_\_\_\_\_

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## **DETAILED ACTION**

### ***Election/Restriction***

1. Newly added claims 21 and 22 depend on non-elected invention/species. Applicant elected without traverse invention I, species IB, A, a, iii and  $\text{TiO}_2$  and  $\text{ZrO}_2$  in Paper No. 13. Claims 21 and 22 are withdrawn from further consideration.
2. Claims 23-25 will be examined as being drawn to the elected invention/species of Paper No. 13.

### ***Response to Arguments***

3. Applicant's arguments filed 7/17/2003 have been fully considered but they are not persuasive.

Applicant argues that Skarpelos does not anticipate the claimed invention. Particularly that Skarpelos does not set forth "a surface adapted to trap thereon radioactive corrosion products contained in water drops ...". Applicant further argues assertion by the examiner in that  $\text{TiO}_2$  is a known Superhydrophilic substance (i.e., substance capable of creating thin liquid films on a surface which allows for the containment of corrosion products). Applicant argues that as set forth in the specification page 7, ln 24+ for  $\text{TiO}_2$  to be a Superhydrophilic substance an  $\text{SiO}_2$  binder must be present.

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First, statements of intended use or field of use, "adapted to", "adapted for" or "capable of" clauses are essentially method limitations or statements of intended or desired use. Thus, these claims as well as other statements of intended use do not serve to patentably distinguish the claimed structure over that of the reference. See In re Pearson, 181 USPQ 641; In re Yanush, 177 USPQ 705; In re Finsterwalder, 168 USPQ 530; In re Casey, 512 USPQ 235; In re Otto, 136 USPQ 458; Ex parte Masham, 2 USPQ 2nd 1647.

See MPEP § 2114 which states:

A claim containing a "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from the prior art apparatus" if the prior art apparatus teaches all the structural limitations of the claim. Ex parte Masham, 2 USPQ 2nd 1647

Claims directed to apparatus must be distinguished from the prior art in terms of structure rather than functions. In re Danly, 120 USPQ 528, 531.

Apparatus claims cover what a device is not what a device does. Hewlett-Packard Co. v. Bausch & Lomb Inc., 15 USPQ2d 1525, 1528.

As set forth in MPEP § 2115, a recitation in a claim to the material or article worked upon (i.e., steam or water droplets) does not serve to limit an apparatus claim.

The structure of Skarpelos is clearly capable of being adapted to meet applicant's claimed inventive concept.

With regard to Skarpelos not disclosing Superhydrophilic substance. That is TiO<sub>2</sub> only not being a Superhydrophilic substance. It is noted that the features upon which applicant relies (i.e., SiO<sub>2</sub> binder) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See In re Van Geuns, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

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Additionally note that applicant's election of the ion exchange material consisted of  $\text{TiO}_2$  and  $\text{ZrO}_2$  only. Although the combination of both  $\text{TiO}_2$  and  $\text{ZrO}_2$  does not appear to have support in the specification no indication that an  $\text{SiO}_2$  binder is required for  $\text{TiO}_2$  and  $\text{ZrO}_2$  to be a Superhydrophilic substance is provided. That is applicant has now indicated that the elected invention is inoperable. A 112 rejection follows below.

Again as set forth above as claimed Skarpelos provides a structure capable of meeting applicant's claimed inventive concept.

The 102 and 103 rejections of Paper no. 14 have been included below to include newly added claims 23-25.

***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 1-5, 9, 12 and 23-25 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

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Per applicant's arguments  $\text{TiO}_2$  alone is not a Superhydrophilic substance. Applicant's election of  $\text{TiO}_2$  and  $\text{ZrO}_2$  only accordingly is not a Superhydrophilic substance. Accordingly the claimed invention is not enabled. That is a binder must be present for the elected material.

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 1-5, 9, 12 and 23-25 are rejected under 35 U.S.C. 112, second paragraph, as failing to set forth the subject matter which applicant(s) regard as their invention. Evidence that claim fail(s) to correspond in scope with that which applicant(s) regard as the invention can be found in Paper No. 16 filed 7/17/2003. In that paper, applicant has stated  $\text{TiO}_2$  alone is not a Superhydrophilic substance, and this statement indicates that the invention is different from what is defined in the claim(s) because as  $\text{TiO}_2$  or  $\text{ZrO}_2$  alone or in combination are not a Superhydrophilic substance and require a binder material.

8. Claims 1-5, 9, 12 and 23-25 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

a. Claim 1 recites the limitation "water drops" in lines 8 and 10. There is insufficient antecedent basis for this limitation in the claim.

b. Claim 5 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements. See

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MPEP § 2172.01. The omitted elements is the binder material  $\text{SiO}_2$  required for  $\text{TiO}_2$  or  $\text{ZrO}_2$  to be a Superhydrophilic substance.

*Claim Rejections - 35 USC § 102*

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10. Claims 1-5 and 23-25 are rejected under 35 U.S.C. 102(b) as being anticipated by Skarpelos et al (5,028,384).

Skarpelos discloses applicant's inventive concept. A nuclear reactor power plant employing a reactor (14), a steam turbine (24) and a radioactive material separating and removing apparatus (20) located inside the reactor pressure vessel. Skarpelos further discloses that the radioactive material separating device or steam dryer is coated with  $\text{TiO}_2$  and/or  $\text{ZrO}_2$  (i.e., metal oxide).  $\text{TiO}_2$  as set forth by applicant (see specification page 7, ln 24+) is a known Superhydrophilic substance.

Statements of intended use or field of use, "adapted to", "adapted for" or "capable of" clauses are essentially method limitations or statements of intended or desired use. Thus, these claims as well as other statements of intended use do not serve to patentably distinguish the

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claimed structure over that of the reference. See In re Pearson, 181 USPQ 641; In re Yanush, 177 USPQ 705; In re Finsterwalder, 168 USPQ 530; In re Casey, 512 USPQ 235; In re Otto, 136 USPQ 458; Ex parte Masham, 2 USPQ 2nd 1647.

See MPEP § 2114 which states:

A claim containing a "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from the prior art apparatus" if the prior art apparatus teaches all the structural limitations of the claim. Ex parte Masham, 2 USPQ 2nd 1647

Claims directed to apparatus must be distinguished from the prior art in terms of structure rather than functions. In re Danly, 120 USPQ 528, 531.

Apparatus claims cover what a device is not what a device does. Hewlett-Packard Co. v. Bausch & Lomb Inc., 15 USPQ2d 1525, 1528.

As set forth in MPEP § 2115, a recitation in a claim to the material or article worked upon (i.e., steam or water droplets) does not serve to limit an apparatus claim.

See figure 1 and columns 1-2, lns 60-16; column 4, lns 56-68 and column 5, lns 1-23.

### ***Claim Rejections - 35 USC § 103***

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.



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Claims 1-5 and 23-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Skarpelos et al ('384) in combination with the admitted prior art (specification page 7, ln 24+) or Zeng et al (JP 11-285635) and Hayakawa et al (WO 96/29375).

Skarpelos discloses applicant's inventive concept; however, it is not apparent that Skarpelos sets forth an operable Superhydrophilic substance ( $\text{TiO}_2/\text{ZrO}_2$ ) then applicant admits (see specification page 7, ln 24+) Superhydrophilic substance utilizing  $\text{TiO}_2$  in combination with a binder are well known.

Zhang (see US equivalent 6,217,999) further teaches a known prior art Superhydrophilic substance via Hayakawa et al (WO 96/29375) utilizing a binder material  $\text{SiO}_2$  in association with  $\text{TiO}_2$ .

Accordingly, modification of Skarpelos to have included the known Superhydrophilic substance teachings (i.e., incorporation of a binder material) would have been obvious to one having ordinary skill in the art at the time the invention was made as such results are in no more than the use of conventionally known materials/designs available within the art as is evident by the admission by applicant or the teachings of Zeng and Hayakawa.

12. Claims 9 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Skarpelos et al ('384) as applied to claims 1-5 and 23-25 above, and further in view of Cowan II et al (5,465,278).

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As set forth above Skarpelos discloses applicant's inventive concept; however, from the figure of Skarpelos it is not clear if the steam dryer (20) (radioactive material separating device) is corrugated.

Referring to figure 1 of Cowan II et al ('278) one can clearly see that steam dryer located within the pressure vessel are corrugated. Accordingly, having a corrugated steam dryer is known within the art, such would be advantageous within Skarpelos reactor in order to increase the exposed surface area of radioactive material separating device. Additionally, substitution of one steam dryer for another type would have been obvious to one having ordinary skill in the art.

Regarding claim 9 - product by the process - the patentability of a product does not depend on its method of production. If the product (corrugated plates) in the product by process claim is the same as the prior art, the claim is unpatentable even though the prior art product was made by a different process. See In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). Also see MPEP § 2113.

Accordingly, the process of coating the steam dryer in Skarpelos meets applicant's claimed inventive concept.

### ***Conclusion***

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jack Keith whose telephone number is (703) 306-5752. The examiner can normally be reached on Monday through Friday from 7:00 to 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Carone, can be reached on (703) 306-4198.

The fax phone number for the organization where this application or the proceeding is assigned is (703) 305-7687. Fax number for submittals before Final is (703) 872-9326, After Final is (703) 872-9327 and customer service is (703) 872-9325.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1113.

A handwritten signature in black ink, appearing to read 'Jack Keith', with a long, sweeping horizontal line extending from the end of the signature.

Jack Keith  
Examiner,  
Art Unit 3641

jwk

September 16, 2003